Humastar 80 Upgrade 1.12c

Upgrade Instruction V1.0

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1. Content of the Upgrade Kit 1.12

Upgrade kit is composed by both hardware and software upgrades.

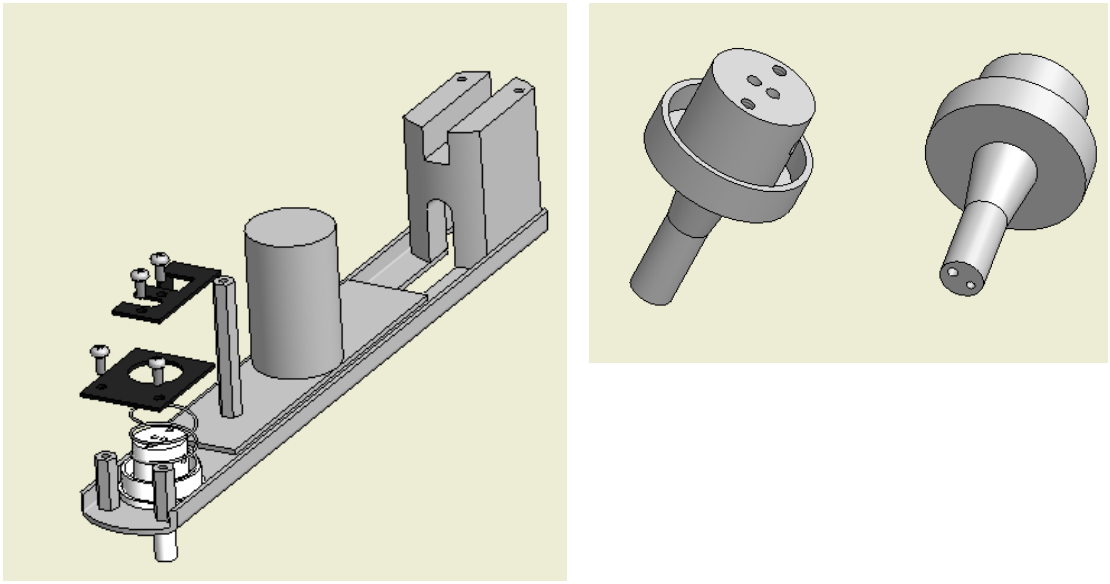
	Upgrade kit	Cat:16880/45	Complete upgrade kit, of all the above listed item.
Qty	**Item**	**Description**	
1	CD ROM	Software HumaStar80, release 1.12C. Note that the software is not hardware dependent, so this release can also run in a machine in which the hardware is not upgraded.	
1	CD ROM	Setting HumaStar80, release 1.04	
1	Upgrade instructions		
1	Aspiration needle	Aspiration needle with internal and outer diameter bigger than previous model.	
1	Needle support with hex screws	Necessary to hold the new asp. needle. Hex screws for needle-holding is changed from M2.5 to M3.	
2	Tube holder	To prevent I/O flow cell tube to float	
1	Flow cell		
1	Input tube	Input tube complete with join for flow cell. From flow cell to aspiration needle.	
1	Output tube	Output tube complete with join for flow cell. From flow cell to peristaltic pump.	

2. Instruction

2.1 Hardware Upgrade

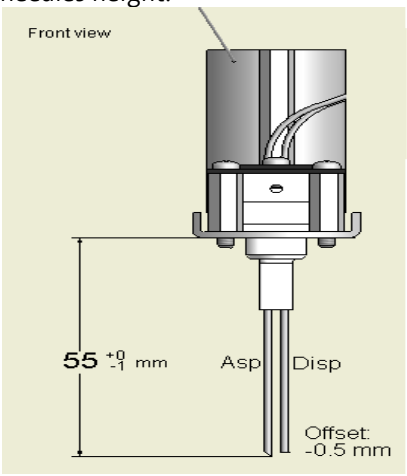
ARM and TUBING:

- Switch off the instrument and disconnected the instrument from the mains
- Open the arm cover by removing the 3 screws.
- Use a solder gun to unsolder both needles. Remove the hex screws that fix the needles and free the support from the needles.
- Disassemble the old support, and place the new one from the upgrade kit. Refer to picture 1 for details.



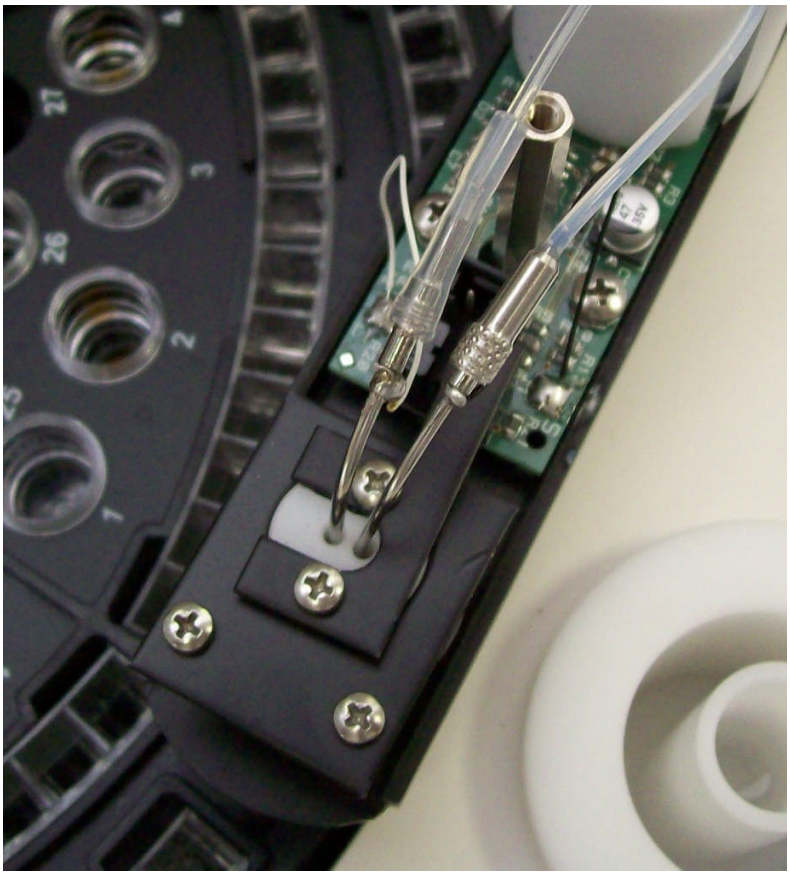
Picture 1: New needle Support

- Reassemble the old dispensing needle and the new aspiration needle on the support. Solder in the needle to the level sensing board.
- Fix the needles into the support by using the 2 hex screws. Refer to picture 2 for setting the correct needles height.



Picture 2: Setting of the needles

- Verify that the needles run parallel and aligned. If necessary align by carefully bending the needle into position.
- Remove the old input tube from the needle to the flow cell. Attach the new tubes to aspiration and dispensing needle.
- Connect the hydraulic for both needles. See picture 3.



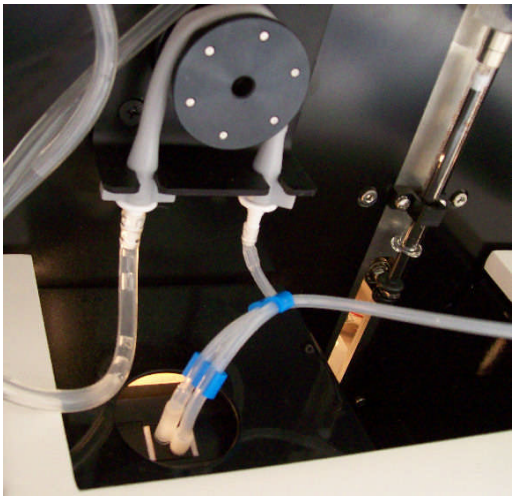
Picture 3: The connection of the needles

FLOW CELL:

- Remove old flow cell and old joint.

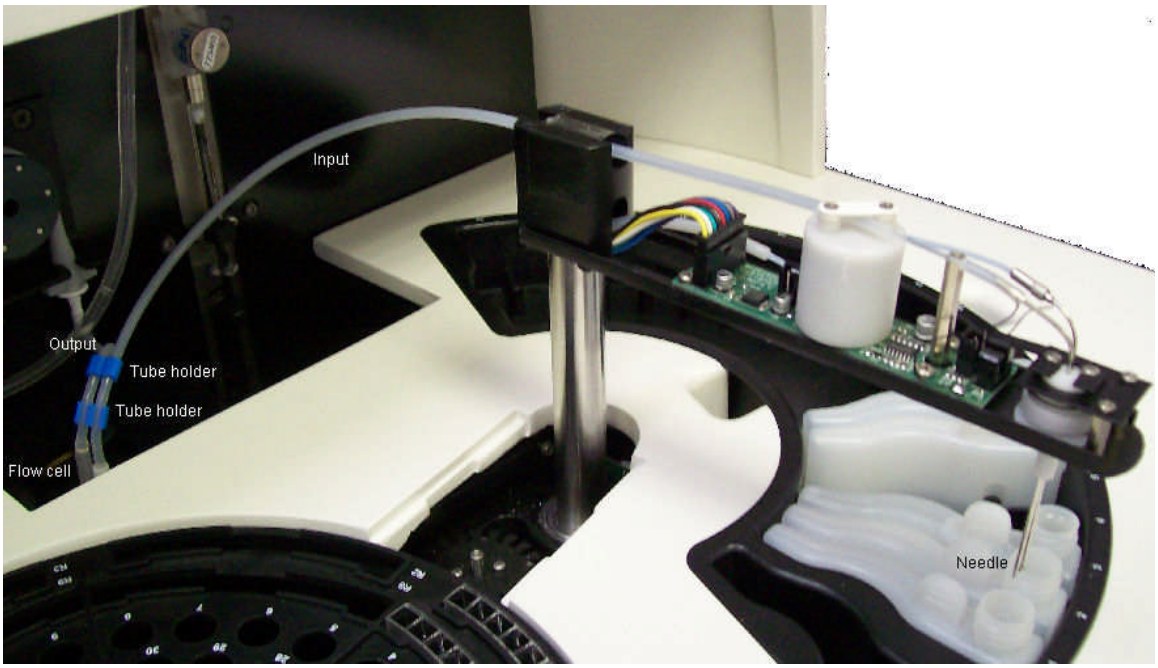
Picture 4: old (left) and new (right) Flow Cell

- Fix the new input and new output joint to the new flow cell, by screwing them. (Do not use a wrench, hand pressure is enough.) After this, screw them again at least 2 times to give good stability to connection.
- Place the 2 tube holders as described in picture 5 to prevent tube floating



Picture 5: Tube holder

- Place the new flow cell in its lodge and fix it by its holding screw.
- Finish by joining input tube to arm and output tube to peristaltic pump.
- Inspect the quality of the upgrade by looking at picture number 6.



Picture 6: Finished Hardware upgrade

2.2 Software Upgrade

- In case of a software upgrade, (old installation of HumaStar80 software installed), backup the old "**c:\instrument**" folder before starting and rename the backup folder to instrument_001
- Perform a complete installation of the software. The software will be automatically installed in the folder "**c:\instrument**".
- Copy the old layout folders from "**c:\instrument_001\layout**" to the new installation, "**c:\instrument\layout**", overwriting existing files.
- If the existing results need to be maintained, you need to copy the content of the folder "**c:\instrument_001\sessions**" to the new installation folder, "**c:\instrument\sessions**".

3 Calibration

- Perform the diluter prime and check for visible leaking.
- In case of no leaking (inspect flow cell joints and joints to needles) close the arm cover, reassembling the 3 screws.
- Verify the correct working of the impact and liquid sensors.
- Perform volume calibration, to automatically adjust instrument to new needle setup.
- Perform peristaltic pump calibration. Verify that the value stays inside a range of 1.2 to 1.4, perform the calibration again 2 more times to verify that the calibration value is stable.
- Perform an autodiagnostic to verify that instrument is working properly.